

EXHIBIT 1

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.,

Plaintiff,

vs.

GOOGLE, INC.,

Defendant.

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)Case No.:

)3:10-cv-03561-WHA

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VIDEOTAPED DEPOSITION OF CHRIS KEMERER, Ph.D.

San Francisco, California

Thursday, March 3, 2016

Volume 1

Reported by:

RACHEL FERRIER, CSR No. 6948

Job No. CS2265292

1 works for the client Oracle, but I believe they were
2 retained by Orrick, the law firm. Actually, I don't
3 really honestly know the exact contractual relationship,
4 but that would be my -- my supposition.

5 Q Do you know the names of these people who work on
6 the technical support team that you used to prepare your
7 reports?

8 A In many cases, yes.

9 Q Who are the people that were assisting you in
10 preparing your report?

11 A Well, again, it might be a long list. I don't
12 want to -- I may leave out people and also some of the
13 work -- in fact, most of the work was not done in my
14 physical presence, so I can't say with certainty always
15 who did what tasks. I know people I've met with and I
16 know people I've spoken with on the phone and so forth,
17 but I won't be able to necessarily identify a specific
18 individual for a task.

19 Q Well, what I would like to know is your best
20 recollection of who helped you --

21 A Mm-hmm.

22 Q -- write your opinions in this case, so can you
23 give me your best recollection?

24 A Okay. But let me back up and -- you have
25 characterized it as helping me write my opinions.

1 I've written my own opinions, but I have had
2 support for some of the factual underpinnings of my
3 opinion, and that's -- those are the kinds of tasks I
4 directed others to do.

5 Q I would be happy to rephrase my question.

6 Please give me your best recollection of the
7 people who assisted you in any way in preparing your
8 opinions in this case.

9 A And your question -- by "best recollection," sort
10 of names of individuals?

11 Q Yes.

12 A Okay. Let's see. To begin with, there is sort
13 of -- I don't know what his actual title is, but maybe
14 sort of engagement manager or something, Jeff Marowits.
15 I've had conversations with him.

16 There is someone who I would characterize as sort
17 of a project manager, Rohit Chatterjee. I had most,
18 actually, probably my dealings with him in terms of my
19 request for work.

20 And then I met with -- boy, a number of members
21 of his team. I won't get all the last names, I'm sorry,
22 but, let's see, Anon and Mo and Mai [phonetic]. Sorry,
23 I'm trying not to forget people, and also, like I said,
24 sometimes I -- I may not actually know everyone who
25 contributed to the work, but I mean, those are -- those

1 are three people that I certainly have had meetings with
2 and I -- I remember.

3 Q Had you ever worked with any of the people you
4 just named before you worked on the reports in this
5 case?

6 A No, I have not.

7 Q Had you ever heard of any of these people before
8 you worked on the matter in this case?

9 A I've had conversations with Jeff Marowits before
10 and not related to this matter, but the other
11 individuals, no.

12 Q Are the individuals you identified affiliated
13 with any other organization besides having been retained
14 by Orrick?

15 A I'm not sure I understand that question.

16 Q Do you have an understanding as to whether or not
17 the individuals you identified are affiliated with any
18 other organization besides being affiliated with Orrick
19 as having been retained by them?

20 A Yes. My -- they work for a firm called Keystone
21 Strategy.

22 Q And what is that?

23 A I understand it to be a litigation support firm,
24 or perhaps they do other things as well, but that's the
25 context in which I know them.

1 Q All right. Can you tell me anything about the
2 background of the people you named who helped you on
3 your report besides their names and their titles, which
4 you have told me?

5 A I know a little bit about their educational
6 background that has just come up in conversations.

7 For example, Mo went to Carnegie Mellon
8 University, where I also have a degree from and have
9 taught at, and he's met with me in Pittsburgh, and we
10 had a conversation because he was familiar with
11 Pittsburgh, having been there as a student, so I know a
12 little about his background.

13 Let's see. Anon, I believe, went to McGill
14 University in Montreal, Canada.

15 That might be the extent of it. If I've heard
16 other things, I've -- again, I didn't remember them.

17 Q All right. Beyond the assistance that you
18 attained from the technical support team that had been
19 retained by Orrick, did you get any other assistance in
20 preparing your opinions in this matter?

21 MR. RAMSEY: Objection to the form.

22 THE WITNESS: Well, as I -- I believe I've been
23 clear in my reports, in -- in instances I do also rely
24 on the opinions of other experts who have also written
25 their own reports in this case.

1 software engineering tools and also looking at the
2 adoption -- early adoption of object-oriented
3 programming.

4 So that's been -- again, of the four, it's my
5 most recent; although, again, "recent" is 20 years now.

6 Q And, specifically, the use of the term
7 "diffusion" --

8 A Oh, I'm sorry.

9 Q -- how are you using it --

10 A Sorry. Sorry. It's probably asking a professor
11 about their research and you tend to get the lecture,
12 sorry.

13 So diffusion is -- typically find that it's
14 the -- the -- the propagation of some new technology
15 through a population. All right? So it can -- it
16 gets -- in the literature, it gets applied quite broadly
17 to lots of things.

18 Here, I'm interested in, for example, you know,
19 new technologies being adopted in a market, because,
20 again, I teach in a business school, so the focus there
21 is -- you know, the -- the population is a -- is a
22 market as opposed to a -- some other kind of network.

23 Q Okay. Excellent.

24 Are you a computer programmer?

25 A I don't consider myself one, no. Although, I

1 have managed computer programmers. I had computer
2 programmers working for me when I worked at American
3 Management Systems.

4 Q Have you ever programmed software?

5 A Oh, yes.

6 Q When did you do that?

7 A All through my school, and, you know, really left
8 it to others to do since then.

9 Q When you say all through school, what school are
10 you referring to?

11 A Primarily undergraduate.

12 Q And when did you graduate from undergraduate?

13 A 1979.

14 Q So is it fair to say that whatever programming
15 you did, you stopped doing around 1979?

16 A As my primary activity, yes; although, obviously,
17 I, you know, have worked with software and looked at
18 software that -- written by other people quite
19 extensively, because that's what software engineering
20 measurement and modeling is all about.

21 Q But, specifically, you, yourself, you haven't
22 engaged in programming in any significant way since
23 1979; is that true?

24 MR. RAMSEY: Objection; form.

25 THE WITNESS: That's fair, yes.

1 BY MS. ANDERSON:

2 Q Of the programming you did perform up until 1979,
3 did any of it involve programming in Java?

4 A No. That would be impossible, since Java was
5 developed after that point in time.

6 Q What languages were you programming in up until
7 1979?

8 A Well, let's see. There would be FORTRAN, PL/1,
9 APL, ALGOL. Those are some that come to mind.

10 Q Okay. Do you consider yourself to be a person
11 with expertise in econometrics?

12 A Yes. I've actually done a fair number of
13 published papers that use econometric modeling
14 techniques.

15 Q So you consider yourself to be an expert in
16 econometrics?

17 A Again, I am someone who uses econometrics in the
18 service of the problems I'm interested in, which are the
19 ones before we have just talked about.

20 Q How are you defining "econometrics"?

21 A The use of statistical techniques as applied to
22 economic modeling.

23 Q Do you have training in the field of
24 econometrics?

25 A Yes. It was covered in my graduate school at

1 Q When was the last time you prepared such a parser
2 script?

3 A I don't believe I've ever prepared a PHP parser
4 script.

5 Q Let's talk about Appendix G.

6 What is this?

7 A All right. Appendix G, labeled "Evolution of
8 Java API Packages," this is a list of Java API packages,
9 and matrix shows in which versions did particular
10 packages appear in.

11 Q Who prepared Appendix G?

12 A My research support staff.

13 Q Again, that's a technical support team you
14 identified earlier; correct?

15 A Yes, it is.

16 Q All right. Let's turn to Appendix H.

17 What is Appendix H?

18 A Appendix H, labeled "37 Packages Compared to
19 Google Lists of Desired Packages," it's a three-column
20 table. The first column labeled "37 Java Packages
21 Ultimately Copied," that's my understanding. These are
22 the Java API packages that are at issue in this case.
23 And the other two columns are lists that came from
24 Google documents about packages that they were
25 interested in.

1 Number of Method Changes," is a computer programming --
2 excuse me, computer program written in the R language,
3 and similar to the PHP scripts earlier, it's a script,
4 essentially, collect and prepare data for use in my
5 analysis of the stability methods changes.

6 Q And did your technical support team prepare
7 Appendix Q?

8 A My technical support team wrote Appendix Q under
9 my direction, yes.

10 Q Okay. Is it fair to say you have never written a
11 script in the R language?

12 A That would be fair, yes.

13 Q Let's turn to Appendix R, which starts on
14 page 260.

15 What is Appendix R?

16 A Appendix R, labeled "Fragmentation Chart," is a
17 table with the list of APIs where the APIs that were
18 copied -- in this case, it says they are listed in
19 green, and in the color version of this, the dark cells
20 in the matrix are the copied packages.

21 Q Okay. Did your technical support team prepare
22 this appendix?

23 A At my direction, yes, they did.

24 Q Okay. And then, if you could, let's just quickly
25 do this as well for Exhibit 1441, just so we know what

1 MR. RAMSEY: Objection; form.

2 THE WITNESS: Okay. Again, in different context,
3 I think it ends up having different meanings. In
4 particular -- you know, you have to give me the context
5 and then I can give you a better answer.

6 BY MS. ANDERSON:

7 Q Do you have an understanding as to whether API is
8 used in any other context besides the allegation by
9 Oracle that Google has copied some aspect of certain
10 APIs?

11 A Yes. As I discuss in a later report, there is a
12 whole API economy business model that has other things
13 having -- that are different than how we have been
14 describing APIs in the context of this lawsuit.

15 Q Tell me, what is your understanding of the
16 meaning or meanings of the term "API," as you sit here
17 today?

18 A The most relevant meaning here, I use the term
19 "API" to refer to the declaring code and the structure,
20 sequence, and organization of the application
21 programming interfaces in Java.

22 Q What other meanings are you familiar with for the
23 term "API"?

24 MR. RAMSEY: Objection; form.

25 THE WITNESS: In my second report, there is a

1 whole notion of APIs as tools to access resources that
2 are -- and it's used in a much broader context.

3 BY MS. ANDERSON:

4 Q What do you mean by that, "used in a much broader
5 context"?

6 A That it means that the broader definition, the
7 idea that it's -- it's the mechanism by which you access
8 some other resource.

9 Q What do you mean by "other resource"?

10 A It could be a variety of things.

11 Q Like what?

12 A Could be data.

13 Q What else?

14 A Could be an operating system.

15 Q What else?

16 A Those are two examples that come to mind.

17 Q Could it include a service?

18 MR. RAMSEY: Objection; form.

19 THE WITNESS: I don't know. I would have to
20 think about that.

21 BY MS. ANDERSON:

22 Q Have you heard the phrase "software as a
23 service"?

24 A I have.

25 Q What does that mean?

1 analysis, using standard tools that are available
2 commercially.

3 Q Describe to me an overview of the methodology
4 that was performed in connection with running PageRank
5 analysis in these different aspects that you studied.

6 MR. RAMSEY: Objection; form.

7 THE WITNESS: So at a high-level, PageRank is a
8 tool to analyze network, so first you have to be able to
9 represent the thing you are interested in as a network,
10 and so, in this case, we are looking at software, and we
11 want to think about the components as being, you know,
12 interconnected nodes and network, and so we have to
13 collect data on the software in terms of what their
14 connections are. And then there's, again, commercially
15 available tool to compute the PageRank values, and
16 earlier today you had me point out the raw data values
17 that I provided in the appendix, and those reflect the
18 centrality of the nodes in the network, in this case
19 these classes.

20 BY MS. ANDERSON:

21 Q With respect to the PageRank analyses performed
22 in connection with your opinions in this case, did you,
23 personally, conduct those analyses?

24 MR. RAMSEY: Objection; form.

25 THE WITNESS: They are my analyses, yes.

1 BY MS. ANDERSON:

2 Q Did you, personally, conduct them?

3 MR. RAMSEY: Objection; form.

4 THE WITNESS: I conducted them with the
5 assistance of my research team.

6 BY MS. ANDERSON:

7 Q Did the technical support team perform these
8 analyses themselves?

9 MR. RAMSEY: Objection; form.

10 THE WITNESS: The analyses are mine. My
11 technical support team ran the tools.

12 BY MS. ANDERSON:

13 Q Okay. What tools are you referring to?

14 A These are the tools listed here in the report,
15 for example, NetworkX.

16 Q Any other tools used by the technical support
17 team in conducting the PageRank analyses?

18 A In other places, we describe the tool Understand,
19 which is also a commercially available tool for code
20 analysis.

21 Q Any other tools used in connection with this
22 analysis?

23 A The custom-written scripts, the PHP and R
24 scripts, are also tools used to support the analysis.

25 Q Any other tools used to conduct the analysis?

1 A We use Excel to show the results.

2 Q Have you given me a full list of tools used in
3 conducting the analyses concerning PageRank in your
4 opinions?

5 A Off the top of my head, yes, I believe that's
6 correct.

7 Q All right. Who selected the use of NetworkX?

8 A I did in consultation with my technical support
9 team.

10 Q Prior to this case, had you ever used NetworkX?

11 A I had not.

12 Q Prior to this case, had you ever used Understand?

13 A Prior to this case, I had not.

14 Q Prior to this case, had you ever used, PageRank?

15 A Prior to this case, no.

16 Q Did the technical support team suggest to you the
17 use of NetworkX, Understand, or PageRank in connection
18 with this case?

19 A We discussed a variety of options, but, yes,
20 those were the options that seemed to be the best suited
21 for this task.

22 Q And those were suggested to you by your technical
23 support team; correct?

24 MR. RAMSEY: Objection; form.

25 THE WITNESS: After they completed a review of

1 available tools that I asked them to do.

2 BY MS. ANDERSON:

3 Q Prior to this case, had you ever heard of
4 NetworkX?

5 A I'm not certain.

6 Q Prior to this case, had you ever heard of
7 understand?

8 A Not certain about that either.

9 Q Prior to this case, had you ever heard of
10 PageRank?

11 A Oh, yes. Everybody knows PageRank.

12 Q Okay. And in what context had you heard about
13 PageRank before?

14 A I think everyone understands that PageRank,
15 developed by Google, is the underpinnings of the Google
16 search engine.

17 Q What was the role of Understand in connection
18 with your opinions in this case?

19 MR. RAMSEY: Objection; form.

20 THE WITNESS: I view it as a data collection
21 tool.

22 BY MS. ANDERSON:

23 Q What kind of data did Understand collect?

24 A Collects data about -- it actually shows up in
25 various places. We are talking about it in the context

1 of PageRank, but I think it also is part of the other
2 software analyses.

3 Basically it's a -- something that allows you to
4 pull raw data and then put it in some other
5 representation so that you can do analysis on it.

6 Q What was the role of Understand in connection
7 with this case?

8 A Again, as a tool for pulling raw data and putting
9 it in raw data for analysis.

10 Q Can you be more specific about what Understand
11 did in connection with this case.

12 A Yes. You -- you -- you have software that it
13 reads, and then it generates output, which is a
14 different representation of that software, and a
15 representation that is more amenable to analysis than
16 the raw source code.

17 Q Can you be more specific in defining what
18 Understand did in connection with this case?

19 MR. RAMSEY: Objection; form.

20 THE WITNESS: No.

21 BY MS. ANDERSON:

22 Q What role did NetworkX have in connection with
23 the analysis in this case?

24 A NetworkX is the tool used to do the PageRank
25 calculation.

1 done the necessary analysis that would support such
2 conclusions.

3 Q Do you have an understanding -- strike that.

4 Can you explain to me how a particular instance
5 variable would be weighted when it's run through
6 Understand as was used in the analysis reflected in your
7 opinions?

8 MR. RAMSEY: Objection; form.

9 THE WITNESS: I'm sorry, so we are no longer
10 talking about the Romanian paper?

11 MS. ANDERSON: You can set aside Exhibit 1443 for
12 now.

13 THE WITNESS: Sorry, can you repeat the question,
14 because I was -- I was looking for it in the context of
15 what we were talking about.

16 MS. ANDERSON: No problem.

17 Q Do you have enough familiarity with Understand to
18 explain to me how a particular instance variable would
19 be weighted?

20 A No.

21 Q As part of the analysis that was performed in
22 connection with your centrality opinions, did your
23 methodology adjust in any way for classes that are not
24 used?

25 MR. RAMSEY: Objection; form.

1 BY MS. ANDERSON:

2 Q For example, legacy code?

3 A I don't know.

4 Q All right. Let's take a look at your rebuttal
5 opinion, paragraph 51, and that's Exhibit 1440.

6 A I'm sorry, paragraph 50 or page --

7 Q Paragraph 51 --

8 A -- 51 --

9 Q -- and appears --

10 A Thank you.

11 Q -- on page 20 of your rebuttal report under the
12 heading "Qualitative Centrality of the Java APIs to
13 Java SE 5."

14 A If you give me a minute --

15 Q Sure?

16 A -- let me read this.

17 Okay. I'm sorry. I see the paragraph you have
18 pointed me to.

19 Q Thank you.

20 In the second -- actually, strike that.

21 In the third sentence of paragraph 51 where you
22 state, quote: As discussed in the rebuttal report of
23 Dr. Schmidt at Section 8-B, upon which I rely, the Java
24 APIs are a fundamental portion of the Java SE platform
25 and provide developers important capabilities, end

1 Q Would you provide an overview of the opinions you
2 have expressed on the subject of stability as relates to
3 the 37 Java APIs at issue in this case?

4 A Yes, I will.

5 Again, in thinking about the -- the questions of
6 the substance and -- and value of the copied APIs, I
7 believe that the historical record shows that -- and my
8 own experience and understanding of markets for
9 software shows that one important characteristic for a
10 software platform is that it be stable, and the first
11 source of this are Google's own managers -- and I've
12 provided these quotes in my reports -- where, in
13 describing their plans for the development of Android,
14 they note that stability is critical.

15 One of the quotes -- it says something like, If
16 it's not stable, we will fail, capital F, capital A,
17 capital I, capital L. And there's some other, in the
18 same vein, notion that, again, the idea of stability
19 being important and, of course, I think, find that
20 completely intuitive. I think all else being equal, you
21 would always prefer to write to a stable platform as
22 opposed to one that's going to be changing and possibly
23 breaking your own code as a software developer.

24 So in pursuing this idea, I instructed my team to
25 conduct empirical work looking at the code and, in

1 A No. I don't have training in the particular
2 language, but I certainly have the education to do the
3 work.

4 Q Is it correct that you do not have the background
5 needed to, as you sit here today, program in the
6 languages in which the scripts were written to perform
7 the analysis of stability that supports your opinions?

8 MR. RAMSEY: Objection; form.

9 THE WITNESS: No. I certainly have the
10 educational background to do so. What I would need
11 would be the specific language training.

12 BY MS. ANDERSON:

13 Q So that's because you don't have training in any
14 of the languages used to write the scripts; is that
15 right?

16 MR. RAMSEY: Objection; form.

17 THE WITNESS: I believe I've said that.

18 BY MS. ANDERSON:

19 Q So you agree with me?

20 A I agree that I have not done training in the
21 languages that these scripts are written in.

22 Q Thank you.

23 And with respect to the analyses of stability
24 that you have done for this case, how would you
25 characterize that stability analysis in terms of a

1 Q 35, Appendix dog.

2 A All right. Okay. I have that now.

3 Q All right. So Appendix D is one of the scripts
4 that was used to calculate package change across Android
5 versions; right?

6 A Yes.

7 Q And drawing your attention to the lines of the
8 script that start on line 30 and go to line 229?

9 A All right.

10 Q Okay. What are the items in this list?

11 A Again, I don't have training in R, so I'm not
12 going to be able to answer questions about this script.

13 Q Do you -- but do you recognize the names in this
14 list that are appearing at lines 30 to 229? Do they --

15 A Oh, the -- the names in -- in the double
16 quotations, yes.

17 Q And what is this list of items from line 30 to
18 229?

19 A These appear to be API names.

20 Q All right. And there are about 200 listed there;
21 correct?

22 A Yes, I'd say so.

23 Q How were these specific 200 API packages selected
24 for study as part of your analysis?

25 A I honestly don't recall.

1 Q Did you ever know?

2 A I may have at one point.

3 Q Who would know?

4 A I don't know the answer to that question either.

5 Q Do you know whether anyone checked to see what
6 was in the source code repository for each API level in
7 preparing this list?

8 A No, I don't know that.

9 Q Do you know whether Android always had no more
10 than 200 packages?

11 A No, I don't.

12 Q Do you know whether there were additional Android
13 packages that were not counted in the analysis that is
14 reflected in Appendix D?

15 A I don't know that, no.

16 Q For the questions that I just asked you where you
17 said "I don't know," who would you ask to find that out?

18 A I would ask someone from the technical support
19 team to find out who was the author of this particular
20 script.

21 Q Drawing your attention to -- back to page 31 and
22 32 of your opening report where you talk about, in
23 paragraph 102, that there are 64 packages, let's take a
24 look at that.

25 A Yes, I'm on 31 of the first report. Sorry --

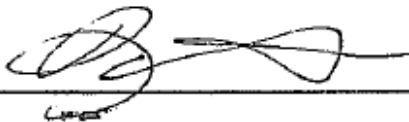
1
2
3
4 I, the undersigned, a Certified Shorthand
5 Reporter of the State of California, do hereby certify:

6 That the foregoing proceedings were taken before
7 me at the time and place herein set forth; that any
8 witnesses in the foregoing proceedings, prior to
9 testifying, were placed under oath; that a verbatim
10 record of the proceedings was made by me using machine
11 shorthand which was thereafter transcribed under my
12 direction; further, that the foregoing is an accurate
13 transcription thereof.

14 I further certify that I am neither financially
15 interested in the action nor a relative or employee of
16 any attorney or any of the parties.

17 IN WITNESS WHEREOF, I have this date subscribed
18 my name.

19
20 Dated: March 4, 2016

21
22 
23

24 RACHEL FERRIER

25 CSR No. 6948